IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND

PHILADELPHIA INDEMNITY INSURANCE COMPANY, *et al.*,	*	
Plaintiffs,	*	**Civil Case No.: SAG-20-00651**
v.	*	**Related: SAG-20-003287**
	*	**SAG-20-00709**
APPLE INC.,	*	
Defendant.	*	

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MEMORANDUM OPINION

Plaintiffs Philadelphia Indemnity Insurance Company and various other subrogees and insureds (collectively "Plaintiffs") brought these products liability subrogation actions against Defendant Apple, Inc., for damages arising out of a fire at a condominium complex. Essentially, Plaintiffs contend that a battery cell in a MacBook Pro ignited and started a fire in the bedroom of Plaintiff Sheila Ross, leading to extensive damage in Ms. Ross's unit and in other residences in the complex. Currently pending are four motions to exclude certain expert testimony, in whole or in part: (1) Plaintiffs' Motion to Preclude Testimony at Trial of Defendant's Damages Expert, Kevin Hromas, ECF 56; (2) Plaintiffs' Motion to Preclude Testimony at Trial of Defendant's Memory Expert, Charles Weaver, ECF 57; (3) Plaintiffs' Motion to Limit the Testimony at Trial of Defendant's Engineering Expert, Donald J. Hoffmann, ECF 58; and (4) Apple's Motion to Exclude the Testimony of Plaintiffs' Expert, Michael Eskra, and Motion for Summary Judgment, ECF 59.

This Court has reviewed the filings and related briefing and has determined that no hearing is necessary.[1] *See* Loc. R. 105.6 (D. Md. 2023); ECF 64–73. For the reasons explained below, Plaintiffs' motion to exclude the testimony of Mr. Hromas, ECF 56, will be GRANTED. Plaintiffs' motion to exclude the testimony of Dr. Weaver, ECF 57, and their motion to limit the testimony of Mr. Hoffmann, ECF 58, will be GRANTED IN PART AND DENIED IN PART. Defendant's motion to exclude the testimony of Mr. Eskra and its motion for summary judgment, ECF 59, will be DENIED. The related, unopposed motion to seal exhibits, ECF 60, will be GRANTED.

I. BACKGROUND

On November 24, 2017, a fire broke out in Sheila Ross's bedroom at the Severn House Condominiums in Annapolis, Maryland. ECF 59-2, Exh. 8 (Annapolis Fire Dept. Report). Ms. Ross occupied her bedroom alone at the time of the fire. ECF 59-2, Exh. 9 (Fire Marshal's Incident Report) at 9. A smoke alarm awoke her shortly after midnight, and she observed small flames at the foot of her bed. ECF 59-2, Exh. 4 (Ross Dep. 2020) at 22:21–23:25. Ms. Ross exited her unit and called 911. *Id.* at 24:20–27:25. The fire quickly spread, eventually causing all

[1] Apple has requested an evidentiary hearing on its motion to exclude Mr. Eskra's testimony. This Court deems such hearing unnecessary in light of the extensive reports and lengthy deposition of Mr. Eskra, providing an ample and detailed record on which this Court can assess the motion. "[T]he law grants a district court the same broad latitude when it decides how to determine [the] reliability [of expert testimony] as it enjoys in respect to its ultimate reliability determination." *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 142 (1999).

of the combustible material in the room to ignite. ECF 59-2, Exh. 3 at 59:21–60:13. The fire damaged surrounding units in the condominium complex. *Id.*

The fire department suppressed the fire and then "overhauled" Ms. Ross's bedroom, which meant opening the walls, ceilings, and voids and removing debris to ensure that no hidden sources of smoldering would re-ignite the flames. ECF 59-2, Exh. 7 (Williams Dep.) at 124:23–127:6. During investigation after those steps had been taken, the Fire Marshal discovered some remains of a MacBook Pro, including four of its six battery cells, on the remnants of Ms. Ross's mattress. *Id.* at 45:19–46:2, 48:13–50:15, 162:7–25; ECF 59-2, Ex.8. However, the location of the laptop during the fire cannot be conclusively ascertained due to the intervening events. ECF 59-2, Exh. 7 at 145:22–147:11. Several other electrical items, including a heating pad, floor lamp, leg massager, and power strip, were found in the area of Ms. Ross's bed. ECF 59-2 Exh. 6 (Hoffmann Report) at 4–5; ECF 59-2, Exh. 9 (Fire Marshal Report) at 7.

On the night of the fire, Ms. Ross told first responders "that she thinks the fire started with her electric heating pad" which was "under her back when she went to bed." ECF 59-2, Exh. 8 at 20; ECF 59-2, Exh. 9 at 8; ECF 59-2, Exh. 7 at 147:12–149:7. She also told the fire investigator that she "recalls unplugging her laptop computer and setting it on the left side of her sofa chair next to the bed" on the night of the fire. ECF 59-2, Exh. 11 (Gray Dep.) at 61:19–62:25. However, according to the Fire Marshal's Incident Report, the fire marshal recalls her describing the laptop as "either on her bed by her feet or on the floor on the right side of the bed." *See* ECF 59-2 at 302.

Six weeks after the incident, Ms. Ross reviewed the fire department's report and learned that some remnants of the MacBook had been found on the remains of her mattress. ECF 59-2, Exh. 2 (Ross Dep. 2021) at 42:10–43:7; 70:19–75:14. At her deposition in 2021, she testified

that after reviewing the fire department's report, she had many "flashbacks" and "bad dreams" that left her "increasingly convinced" that the small flames she saw upon awakening were on the laptop at the foot of her bed. ECF 59-2, Exh. 2 at 74:15–75:3, 86:8–87:24, 95:20–99:10. She testified that she recalls placing the MacBook Pro on the foot of her bed before going to sleep and waking up to "little flames like candle flames . . . [o]n top of something whitish or silverish" where the computer had been placed. ECF 59-2, Exh. 4 (Ross Depo. 2020) at 21:19–22:20, 23:14–24:19.

With respect to the computer, Ms. Ross had purchased it on June 1, 2014. ECF 59-2, Exh. 2 at 7:22–8:21. Ms. Ross typically left it plugged in while at work and then unplugged it (relying on battery power) while she was home. *Id.* at 15:2–10, 16:5–11, 17:16–18:9. She typically did not run the battery down to where the device required a recharge every evening, and instead she plugged the computer in when it notified her that the battery level was low. *Id.* at 16:5–17:8, 18:1–19:8. She used the MacBook Pro on a daily basis unless she was on vacation. *Id.* at 11:4–15:1.

In June, 2015, Ms. Ross hired Annapolis GEEKS, a local independent computer repair business, to replace the hard drive in the MacBook Pro. ECF 59-2 Exh. 4 at 46:8–47:1, 83:24–84:13; ECF 59-2 Exh. 5 at 44:6–46:22, 49:2–23, 50:9–51:20. Annapolis GEEKS has no affiliation with Apple and does not use Apple tools or parts to perform hard drive repairs. *Id.* at 21:6–23, 41:15–44:5. Ms. Ross did not experience problems with the MacBook Pro until she downloaded a new operating system a few months before the fire. ECF 59-2 Exh. 4 at 86:3–89:1, ECF 59-2 Exh. 2 at 20:15–24:1. After that download, Ms. Ross reported that "the computer ran hotter" and spontaneously shut down on about two occasions. *Id.* The day before the fire was Thanksgiving Day, and Ms. Ross went to her daughter's home, leaving the laptop turned off and

unplugged. ECF 59-2 Exh. 2 at 12:5–18, 14:24–18:1. When she returned that evening, she plugged it in for 15–20 minutes while she answered emails. *Id.* She retired for the evening, taking the unplugged laptop with her to answer additional emails in bed. *Id.* at 18:15–21:18. She worked for about 30 more minutes before going to sleep. *Id.* The fire ensued.

About two months after the fire, the parties jointly conducted an inspection of evidence from the fire scene. ECF 59-2 Exh. 10 (Redsicker Report) at 8, 24–30. The parties reviewed the four battery cells and remnants of the MacBook Pro, as well as other piles of debris. *Id.* Several months later, the parties held a joint lab examination to inspect the evidence from the scene. ECF 59-2 Exh. 6 (Hoffmann Report) at 6-15; ECF 59-2 Exh. 18 (Eskra Report). During the lab examination, the parties located the fifth out of six battery cells from the computer.[2] ECF 59-2 Exh. 6 at 12, 24; ECF 59-2 Exh. 3 (Eskra Dep.) at 63:15–64:1. The visual inspection of the fifth cell suggests it was hit by a shovel or stepped on by a firefighter. ECF 59-2 Exh. 6 at 14, 24; ECF 59-2 Exh. 3 at 62:10–19, 64:2–18.

II. LEGAL STANDARDS

"A motion in limine is a request for guidance by the court regarding an evidentiary question." *Hunt Valley Baptist Church, Inc. v. Baltimore Cnty., Maryland*, No. 17-CV-804, 2018 WL 2717834, at *7 (D. Md. June 6, 2018) (unpublished) (quoting *United States v. Luce*, 713 F.2d 1236, 1239 (6th Cir. 1983)). Typically, pretrial motions in limine seek to exclude prejudicial evidence before it is offered at trial. *Changzhou Kaidi Elec. Co., Ltd. v. Okin Am.,*

[2] The sixth battery cell has never been recovered. The other four were found with the laptop.

Inc., 102 F. Supp. 3d 740, 745 (D. Md. 2015) (quoting *Luce v. United States*, 469 U.S. 38, 40 n.2 (1984)). These motions help to streamline a case by allowing a court to avoid "lengthy argument at, or interruption of, the trial." *Banque Hypothecaire Du Canton De Geneve v. Union Mines, Inc.*, 652 F. Supp. 1400, 1401 (D. Md. 1987); *see also Changzhou Kaidi*, 102 F. Supp. 3d at 745 ("[Motions in limine] are 'designed to narrow the evidentiary issues for trial and to eliminate unnecessary trial interruptions.'" (quoting *Louzon v. Ford Motor Co.*, 718 F.3d 556, 561 (6th Cir. 2013))). Motions in limine further promote judicial efficiency by preserving the issues raised for appeal and eliminating the need for parties to renew their objections at trial, "just so long as the movant has clearly identified the ruling sought and the trial court has ruled upon it." *United States v. Williams*, 81 F.3d 1321, 1325 (4th Cir. 1996); *see* Fed. R. Evid. 103(a); *cf.* R. 103(a) advisory committee's note to 2000 amendment (acknowledging that Rule 103(a) "applies to all rulings on evidence . . . including so-called 'in limine' rulings").

Generally, courts should grant a motion in limine "only when the evidence is clearly inadmissible on all potential grounds." *Dorman v. Anne Arundel Med. Ctr.*, No. 15-1102, 2018 WL 2431859, at *1 (D. Md. May 30, 2018) (quoting *Emami v. Bolden*, 241 F. Supp. 3d 673, 681 (E.D. Va. 2017)). Ultimately, rulings on these motions fall within the trial court's "broad discretion." *Kauffman v. Park Place Hospitality Grp.*, 468 F. App'x 220, 222 (4th Cir. 2012); *see also United States v. Johnson*, 617 F.3d 286, 292 (4th Cir. 2010) (noting that evidentiary rulings fall within a trial court's discretion).

Both parties' motions aim to exclude testimony from one or more of the opposing side's expert witnesses. Federal Rule of Evidence 702 governs the admissibility of expert witness testimony. A qualified expert may give testimony if:

> (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
> (b) the testimony is based on sufficient facts or data;
> (c) the testimony is the product of reliable principles and methods; and
> (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702. In essence, the trial court must ensure the proposed expert testimony "both rests on a reliable foundation and is relevant to the task at hand." *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 597 (1993). In *Daubert*, the Supreme Court provides five non-exhaustive factors a court may weigh in making this assessment: (1) "whether a theory or technique . . . can be (and has been) tested," (2) "whether the theory or technique has been subjected to peer review and publication," (3) "the known or potential rate of error," (4) "the existence and maintenance of standards controlling the technique's operation," and (5) whether the technique or theory has gained "general acceptance." *Daubert*, 509 U.S. at 592–94; *Pugh v. Louisville Ladder, Inc.*, 361 F. App'x 448, 452 (4th Cir. 2010). However, ultimately, the inquiry is "a flexible one" and relevant factors can vary with the needs of each case. *Daubert*, 509 U.S. at 594.

For the proffered evidence to be sufficiently reliable it "must be derived using scientific or other valid methods" and not based on mere "belief or speculation." *Casey v. Geek Squad Subsidiary Best Buy Stores, L.P.*, 823 F. Supp. 2d 334, 340 (D. Md. 2011) (first quoting *Oglesby v. Gen. Motors Corp.*, 190 F.3d 244, 250 (4th Cir. 1999); then quoting *Bryte ex rel. Bryte v. Am. Household, Inc.*, 429 F.3d 469, 477 (4th Cir. 2005)). The court's analysis focuses on experts' methods, not their conclusions, but an expert opinion that relies on "assumptions which are speculative and not supported by the record," is inadmissible. *Tyger Const. Co. Inc. v. Pensacola Const. Co.*, 29 F.3d 137, 142 (4th Cir. 1994); *see also Gen. Elec. Co. v. Joiner*, 522 U.S. 136,

146 (1997) ("[N]othing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered."). For the proffered opinion to be relevant, it "must be 'sufficiently tied to the facts of the case that it will aid the jury in resolving a factual dispute.'" *Casey*, 823 F. Supp. 2d at 340 (quoting *Daubert*, 509 U.S. at 591). Expert testimony "is presumed to be helpful unless it concerns matters within the everyday knowledge and experience of a lay juror." *Anderson v. Home Depot U.S.A., Inc.*, No. 2615, 2017 WL 2189508, at *4 (D. Md. May 16, 2017) (quoting *Kopf v. Skyrm*, 993 F.2d 374, 377 (4th Cir. 1993)).

The proponent of the expert testimony bears the burden of establishing admissibility, or "coming forward with evidence from which the trial court could determine that the evidence is admissible under *Daubert*." *Id.* at *3 (quoting *Main St. Am. Grp. v. Sears, Roebuck, & Co.*, No. 08-CV-3292, 2010 WL 956178, at *3 (D. Md. Mar. 11, 2010)); *see also Casey*, 823 F. Supp. 2d at 340; *Daubert*, 509 U.S. at 592 n.10 (explaining admissibility must be established by a "preponderance of proof").

In determining the admissibility of expert testimony, the court considers two "guiding, and sometimes competing, principles." *Westberry v. Gislaved Gummi AB*, 178 F.3d 257, 261 (4th Cir. 1999). On the one hand, Rule 702 was "intended to liberalize the introduction of relevant expert evidence," and the court need not ensure the expert's proposed testimony is "irrefutable or certainly correct." *Id.* (explaining that admissible expert testimony can still be vigorously tested before the jury by "cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof" (quoting *Daubert*, 509 U.S. at 596)). On the other hand, "due to the difficulty of evaluating their testimony, expert witnesses have the potential to

'be both powerful and quite misleading.'" *Id.* (quoting *Daubert*, 509 U.S. at 595). The court must determine whether the disputed expert testimony "has greater potential to mislead than to enlighten." *Id.* If so, the testimony should be excluded. *Id.*; *see also Casey*, 823 F. Supp. 2d at 340 (noting such testimony would be barred by Federal Rule of Evidence 403).

III. DISCUSSION

A. Plaintiffs' Motion to Exclude the Testimony of Kevin Hromas

Apple retained Mr. Hromas to calculate the Actual Cash Values ("ACV") of the damaged real property to determine Apple's total potential liability. ECF 56-2. While Plaintiffs do not challenge Mr. Hromas's expert qualifications, they argue his opinions are irrelevant for the jury because they do not comport with the proper measure of damages under Maryland law. This Court agrees.

Maryland law:

> permits a plaintiff to choose between the diminution in value of the property or the cost of restoration as the measure of damages resulting from tortious injury. *Superior Constr. Co. v. Elmo*, 20 Md. 1, 9–10, 102 A.2d 739 (1954); *Regal Constr. Co. v. West Lanham Hills Citizen's Ass'n*, 256 Md. 302, 260 A.2d 82 (1970). If, however, the cost of restoration is disproportionate to the diminution in value, the latter is the appropriate measure of damages *unless* the Plaintiff has a "reason personal" for restoring the property. *Regal*, 256 Md. at 305, 260 A.2d 82; RESTATEMENT OF TORTS 929 cmt. *b*. When a "reason personal" is found, the plaintiff may recover restoration costs even if greater than the value of the entire property. *Id.* The *Elmo* court indicated this rule does not differ materially from the RESTATEMENT OF TORTS § 929. *Elmo*, 204 Md. at 10, 102 A.2d 739.

Lexington Ins. Co. v. Baltimore Gas & Elec. Co., 979 F. Supp. 360, 362 (D. Md. 1997).

Generally, then, the plaintiff elects whether his damages should be measured by the diminution in value or the cost of restoration. Once that election is made, the defendant bears the burden to show that "the plaintiff's evidence is not the proper measure of damages by offering

evidence that the option not pursued by the owner would cost him less." *Kruvant v. Dickerman*, 305 A.2d 227, 230 (Md. Spec. App. 1973).

In this case, Plaintiffs have elected to recover reasonable replacement cost for the damages.[3] But Apple correctly notes that the law permits it "to show that 'diminution in value' is actually the appropriate measure of those damages in this subrogation action." ECF 67 at 2. Mr. Hromas's report does not demonstrate diminution in value by calculating the value before the fire and the value after the fire to determine the difference. Instead, Mr. Hromas only calculates the ACV of the real properties at issue before the fire, using an Xactimate program employed by the insurance industry to calculate ACV and depreciation. Apple posits that because that ACV, even before the fire, is substantially less than the replacement costs Plaintiffs seek, it has proved that diminution in value is the lower figure and must be the appropriate measure of damages. But Apple and Mr. Hromas offer no means of calculating the actual diminution in value of the real property after the fire. In other words, they do not offer the ACV

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[3] This Court notes that in many cases, terms like "diminution in value" and "replacement costs" are defined, either in a governing statute or regulation or in an insurance contract. For example, Plaintiffs cite a case for the proposition that "Replacement costs mean the insurer 'will pay replacement costs after application of the deductible and without deduction for depreciation." *Moffett v. Computer Scis. Corp.*, Civ. No. PJM-05-01547, 2011 WL 2559597, at *2 n.1. (D. Md. June 26, 2011). But *Moffett* did not purport to enunciate a general principle of Maryland law, but was simply quoting from FEMA regulations defining replacement costs in a FEMA case. And for its part, Apple cites cases recounting laws in other states that expressly incorporate "actual cash value" into their definitions of diminution. *See* ECF 67 (citing *Nelson v. Farm Bureau Town & Country Ins. Co. of Mo.*, 560 S.W. 3d 81, 88 (Mo. Ct. App. 2018) and *Imrie v. Ratto*, 206 A.D.3d 1490, 1493 (N.Y. App. Div. 2022). This case does not have the benefit of any such definitions, as it presents a common law tort subrogation claim in a state that does not appear to have provided like guidance. Thus, most of the cases cited by the parties are relatively unhelpful.

of the property before the fire and the ACV after the fire, such that the diminution in value can be ascertained.

Even more importantly, ACV is not the appropriate measure of "value" under Maryland law. As articulated above, the Maryland Supreme Court adopted a rule for damages not materially different from the Restatement of Torts § 929. *See Lexington Ins. Co.*, 979 F. Supp. 360, 362 (D. Md. 1997) (citing *Elmo*, 204 Md. at 9). As used in the Restatement, "value" means exchange value or the value to the owner where greater than the exchange value. *See* Restatement of Torts § 911; *see also id.* cmt. b ("*Market value*. Where there is an established market, the value of property ordinarily is determined by the amount paid in actual transactions involving a similar subject matter if such transactions have occurred at or about the time fixed for determining value.").

While there do not appear to be cases directly tackling the issue of whether fair market value or ACV should be used, Maryland courts have repeatedly referenced market value as the appropriate measure. For example, in *Regal Constr. Co.*, 260 A.2d at 83, the Maryland Supreme Court found "the trial court erroneously excluded expert testimony with respect to the diminution in ***market value*** of the Association's property.") (emphasis added); *see also Mullan v. Hacker*, 187 Md. 261, 270 (1946) ("There is no question that the measure of damages for property is the cost of restoring it, . . . but where the cost of restoring is greater than the diminution in the market value, the correct measure is the difference between the value of the property before the injury and after."). The clear implication of these holdings is that market value is the appropriate measure of damages. That position also comports with common sense. If an owner can sell real property for $200,000 the day before a fire but can only sell it for $50,000 the day after, he has lost $150,000 because of the fire, regardless of what the depreciated value of the property may

be. Thus, while ACV has import in the insurance context, it is not the appropriate measure of diminution in value for the purposes of restoring Plaintiffs to their pre-fire position.

The second issue pertaining to Mr. Hromas's testimony involves Plaintiffs' desire to recoup the cost of code upgrades made to the condominium complex as it was repaired. Mr. Hromas opines that the code upgrades, which involved both damaged and undamaged portions of the condominium building, should not be included in the cost of repair because they are betterments or improvements that increase the value of the building. Plaintiffs counter that they had a completely code-compliant building before the fire, and that they were required to bring the building to current code compliance when repairing the fire damage, which necessitated certain upgrades to meet revised building codes. This dispute is one within the comprehension of a lay jury. Jurors do not require expert testimony to consider and determine whether, if Apple is found liable for the fire, it should be responsible for code improvement costs as part of the replacement value of the property or whether those costs fall outside the amount required to restore Plaintiffs to their pre-fire status.

For these reasons, Mr. Hromas's testimony will be excluded in its entirety.

B. Motion to Exclude Testimony of Memory Expert

Plaintiffs also move to exclude the testimony of Apple's proposed memory expert, Dr. Charles Weaver. Once again, Plaintiffs do not challenge Dr. Weaver's expert credentials. Instead, they argue that Dr. Weaver's opinions "invade the province of the jury" and are irrelevant because they do not "fit" the facts of this case. ECF 57. This Court disagrees.

Witness credibility, of course, is a quintessential jury issue. The law does not permit an expert witness to opine on any lay witness's credibility, and Apple appropriately does not offer Dr. Weaver for that purpose. *See, e.g.*, *United States v. Cecil*, 836 F.2d 1431, 1442 (4th Cir.

1988) ("[A]n opinion on the credibility of a witness by a psychiatrist is not allowable."). Instead, Apple offers Dr. Weaver's testimony to assist in educating the jury about memory development and retention, including the likelihood of changes to a witness's recollections over time, the effects of suggestibility and acquisition of post-event information, considerations of inattention and memory reconstruction, and the effect of transience.

Indeed, in some instances, expert testimony about the science of memory has been deemed an impermissible encroachment on the province of the jury. *See, e.g.*, *Hales v. State*, No. 05-07-01302-CR, 2009 WL 565713, at *4 (Tex. App. Mar. 6, 2009) (affirming a lower court's exclusion of Dr. Weaver's testimony on memory because it was "offered purely as educational material for the jury"); *CNH Indus. Am. LLC v. Travelers Indem. Co.*, No. CVN-12-C-07108, 2015 WL 5145523, at *2 (Del. Super. Ct. Feb. 19, 2015) (finding that [Dr. Weaver's] testimony was "sufficiently within the common knowledge and experience of the jury."); *see also* ECF 57 at 8 (collecting cases). However, such testimony has been admitted in various circumstances. *See* ECF 68 at 9 n.4 (collecting orders denying motions to preclude Dr. Weaver's testimony). It is most commonly seen in criminal cases involving eyewitness identification testimony, but its use is not limited solely to that arena. *Id.*

Plaintiffs contend that nothing distinguishes this case from any other case involving important eyewitness testimony, and that if a memory expert is allowed here, it should be allowed in every case. This Court is unpersuaded and believes this case has some distinguishing factors that make Dr. Weaver's testimony particularly helpful to the jurors. It is true some of the data Dr. Weaver cites about misunderstanding of memory by non-experts is generally applicable to all cases involving eyewitness recollection. And in some cases, the personal experiences of the jurors in developing and retaining memories, in combination with robust cross-examination, will

suffice to allow the jurors to assess the credibility of a witness's recollections without expert assistance. But here, first, Ms. Ross's relevant memories were formed in an unusually stressful situation. Awakening to a fire in one's bed is a terrifying circumstance thankfully outside the experience of almost all jurors. The effect of extreme stress on one's ability to form memories and retain information is therefore of import in this case. Second, this case presents a particularly acute example of a dramatic change in the witness's recitation of facts over time, combined with the acquisition of relevant information from outside sources between the initial statements and the eventual deposition testimony. This is not a case of just minor inconsistencies between one recounting and another. In her initial version of events to the investigators, Ms. Ross attributed the fire to her heating pad. ECF 59-2, Exh. 8 at 290 (noting "she thinks the fire started with her electric heating pad"), ECF 59-2, Exh. 9 at 8 ("There was an approximately 12 inch by 18 inch heating pad under her back when she went to bed."). Presently, she asserts very clearly that she recalls seeing her laptop on fire. ECF 59-2, Exh. 4 (Ross Depo. 2020) at 21:19–22:20, 23:14–24:19.

Finally, Ms. Ross's testimony relies on unusual means of recollection to explain her inconsistency—means that a lay juror would require the scientific expertise of a memory expert to properly understand and assess the credibility. For example, it is her testimony that she eventually began having "bad dreams" and "flashbacks" about what happened at the time of the fire, as opposed to insisting that she had seen it and recalled it from the time of the initial event. *See* ECF 59-2, Exh. 2 (Ross Dep. 2021) at 86:8–87:14; *id.* at 74:9–75:3 ("It was just one night. I woke up and I realized that's what it was, and I saw it. It was kind of weird, but there you have it. . . . I was awake. I woke up, and I saw it again, and I realized that's what it was."). Expert testimony about the unlikelihood of gaining additional recollection as time passes is therefore

especially relevant in this case, as is information about the potential for such belated recollection to be influenced by the acquisition of intervening information.

In this case, then, this Court will allow Dr. Weaver's proposed testimony to some extent. Specifically, he will be permitted to testify as to the process of encoding, particularly in a traumatic situation, memory reconstruction, suggestibility, and post-event information. An explanation of those general principles is relevant to the jury's consideration and weighing of Ms. Ross's testimony. Obviously, Dr. Weaver will not be permitted to opine on the ultimate issue of whether Ms. Ross's testimony is credible or incredible. But his inability to reach that issue does not mean his testimony about memory formation, retention, and alteration is irrelevant or useless to the jury. *Casey*, 823 F. Supp. 2d at 340 (noting that a proffered opinion is relevant where it is "'sufficiently tied to the facts of the case that it will aid the jury in resolving a factual dispute'") (quoting *Daubert*, 509 U.S. at 591). The evidence is helpful and will be permitted.

C. Motion to Limit Testimony of Donald Hoffmann

While again conceding the witness's expert credentials, Plaintiffs seek to limit the ability of another defense witness, Donald Hoffmann, to testify about two of his opinions:

(1) That simply by looking at the battery cells after the fire, he can opine that they had a low "state of charge" or SoC at the time of the fire;
(2) That due to the low state of charge, the battery cell's failure would not generate sufficient energy to ignite the laptop or surrounding material.

Mr. Hoffmann's report contains no specific references to the scientific literature or testing he relied upon in reaching those conclusions. *See generally* ECF 59-2, Exh. 6. At deposition, Mr. Hoffmann identified two particular articles he had used and testified that he had performed pertinent testing in 2007–2008 with respect to battery SoC and its effect on thermal runaways. ECF 58-3 at 263:5–264:14. After requesting and receiving supplemental documentation, Plaintiffs re-deposed Mr. Hoffmann on those issues on a later date. ECF 58-6. Plaintiffs

generally contend that Mr. Hoffmann prepared a rushed report largely signing off on opinions drafted by others.

With respect to the SoC, Mr. Hoffmann's report said:

> The damage to the computer is significant, but the damage to the batteries indicates they were at a low state of charge. At a low state of charge, a thermal event in one of the battery cells would not release enough energy to serve as the ignition source in this event. The MacBook Pro's state of charge is the determining factor in whether the battery could even provide the energy required to initiate the ignition sequence. The computer was not charging at the time and a hypothesized failure of these batteries without information on the device's state of charge is speculative at best.

ECF 58-2 (Hoffmann Report) at 23.

Plaintiffs contend that the two articles cited by Mr. Hoffmann do not support his view that he can tell from a visual inspection of the batteries post-fire that they had been at a low state of charge when the fire occurred. The first article is Celina Mikolajczak, *et al.*, *Lithium-Ion Batteries Hazard and Use Assessment: Final Report*, THE FIRE PROTECTION RESEARCH FOUNDATION, July 2011 ("Mikolajczak Article"). The article briefly touches upon the issue, noting "cell thermal runaway is unlikely to occur in a cell at a low SoC." ECF 59-2, Exh. 19 at 70. The article does not define what "low" means, it merely cites two studies that have found it difficult to induce a thermal runaway reaction when a battery is less than 50% charged. *Id.* Further, the article does not rule out the fact that such an event still might occur. *Id.* Some of the article's cited studies also analyzed a different type of lithium battery than that at issue in this case, such as 18650-type cylindrical batteries as opposed to the polymer, pouch-shaped batteries in Ms. Ross's MacBook Pro. *Id.*

Mr. Hoffmann also cited Perrine Rebiére, *et al.*, *Investigation on the Fire-Induced Hazards of Li-ion Battery Cells by Fire Calorimetry*, ENERGY & ENVIRONMENTAL SCIENCE, Aug. 15, 2011 ("Rebiére Article"). ECF 58-5. The Rebiére Article reports on the rate of heat release,

the effective heat of combustion, and the subsequent release of toxic gases of commercial pouch Li-ion batteries in controlled laboratory environments. The study's authors noted that the rate of heat release increased with the SoC, and noted that "the fully charged battery discloses the highest reaction rate; the combustion heat is very shortly released that could entail a potential risk of explosion." *Id.* at 6. However, the article only studies three SoCs: 100%, 50%, and 0%. *Id.* at 5. At his second deposition, Mr. Hoffmann stated that a "low state of charge" simply meant that the batteries were "not fully charged." ECF 58-6 at 572:1–11. At his earlier deposition, he testified that Ms. Ross's battery was at "likely less than 80 percent" of capacity. ECF 58-3, 129:4–21. He admitted that neither article had pictures of battery cells or assessed limiting effects at "below 80 state of charge." Therefore, although the study's authors draw conclusions about general trends when comparing results of the fully-, half-, and un-charged batteries, the study itself does not support Mr. Hoffmann's contention that a battery at a "low" state of charge could not produce a fire.

With respect to his own testing in 2007–2008, Mr. Hoffmann also tested cylindrical 18650-type batteries and not polymer/pouch battery cells. *See* ECF 58-6 at 549:6–573:4. He also testified about tests he had conducted on various electronic phones and tablets, in which he forced them to fail in different states of charge to determine whether they would become ignition sources. He stated that he "think[s they] did 50, 80, and 100 percent state of charge on one set of batteries with similar capacity as the MacBook." *Id.* at 545:18–546:1. He observed that a forced failure did not cause flaming on the 50- and 80-percent charged batteries, but "at 100 percent state of charge, it burst into flames." *Id.* at 546:4–5. Based on these results, he concluded that forced failure of lithium-ion polymer batteries does not produce flames until over an 80% SoC. *Id.* at 563:5–10.

Ultimately, while an expert witness's testimony cannot be based on speculation or *ipse dixit* reasoning, there also need not be scientific testing or academic research on the precise facts involved in the case in question. Instead, there must be a reliable scientific basis for the expert's analysis, which can involve reasonable inferences drawn, on the basis of existing science, from the facts on which the expert relies. The question also is not whether the expert can offer a conclusive opinion on a particular legal question, but whether the expert can "help the trier of fact to understand the evidence to determine a fact in issue." *Sardis v. Overhead Door Corp.*, 10 F. 4th 268, 281 (4th Cir. 2021). Of course, the closer and more robust the scientific basis for the expert's testimony, the less fertile ground for cross-examination will exist. And it may be true that, here, Plaintiffs will have ample grounds to attack Mr. Hoffmann's opinions on cross-examination. The determination as to which expert witnesses are to believe, however, rests with the jury.

Although Plaintiffs repeatedly suggest that Mr. Hoffmann used visual inspection alone to conclude that the MacBook Pro's battery cells had not been fully charged, it is evident that he also considered Ms. Ross's testimony about her laptop usage. Even a layperson can conclude that a laptop that has been used for some period of time unplugged will not be fully charged. Plaintiffs are correct, however, that Mr. Hoffmann has no basis to opine as to any precise percentage of SoC. Moreover, he has not established any basis to opine conclusively that the battery cell's SoC would render it unable to ignite the laptop or cotton bedding material. On the precise capability of Ms. Ross's battery cell to ignite or not at the time of the fire, his opinion constitutes mere "belief or speculation," and is not grounded by accepted scientific or other valid methods. *Casey v. Geek Squad Subsidiary Best Buy Stores, L.P.*, 823 F. Supp. 2d 334, 340 (D.

Md. 2011) (quoting *Bryte ex rel. Bryte v. Am. Household, Inc.*, 429 F.3d 469, 477 (4th Cir. 2005)).

Accordingly, Mr. Hoffmann will be permitted to testify that Ms. Ross's laptop was at a low state of charge, defined as less than fully charged, and that batteries at a low state of charge are less likely to produce enough energy to be a competent ignition source. He will not be permitted to testify more definitively that Ms. Ross's battery cell was at too low of a SoC to ignite the bedding material or cause the fire.

D. Motion to Exclude Testimony of Michael Eskra

Michael Eskra is a battery expert retained by Plaintiffs. Apple does not challenge his expert qualifications. Instead, it contends that his methodology is unreliable because, in Apple's view, he simply looked at the CT scans of the battery cells to reach his conclusion. Because the fifth cell shows internal, localized damage to the electrode windings while the other four only have exterior damage, Mr. Eskra opines that the fifth cell shorted and caused the ignition.

Apple argues that Mr. Eskra failed to conduct a multi-factor investigation as outlined in Celina J. Mikolajczak, *et al.*, *A Scientific Methodology for Investigation of a Lithium Ion Battery Failure,* IIEE (2007); ECF 59-2 Exh. 19. Apple further contends that the only published article addressing the use of imaging to identify a pre-fire short circuit shows that such analysis cannot be conclusive, because damage from an internal fault is indistinguishable from fire damage. Tai Nagourney *et al.*, *The Implications of Post-Fire Physical Features of Cylindrical 18650 Lithium-Ion Battery Cells*, FIRE TECHNOLOGY (Jan. 2021) ("Nagourney Article"); ECF 59-2 Exh. 20. The Nagourney Article refers to the "untested hypothesis" that "[d]amage localized to the interior electrode windings compared to the external windings indicates cell failure and fire causation." *Id.* at 1710.

Plaintiffs persuasively respond, however, that Mr. Eskra did not simply find interior winding damage in the fifth cell and use it to determine that the fifth cell caused the fire. Instead, he conducted a multifactor analysis involving (1) review and comparison of several different types of scans of multiple neighboring battery cells to identify relevant differences, (2) attendance at a joint lab examination to inspect the evidence of the fire scene, and (3) consideration and exclusion of other external factors, such as the hard drive change. While Mr. Eskra's methodology and conclusions will be subject to cross-examination (presumably in part using the articles cited in this briefing), there is a distinct difference between observing a single battery cell and drawing conclusions from its damage and observing and comparing differences between neighboring battery cells which presumably were exposed to similar fire conditions, particularly in connection with consideration of other possible causes of the fire.[4] The latter constitutes the type of multi-factor analysis that the scientific literature contemplates.

Apple further argues that Mr. Eskra's opinion regarding defect is overly speculative because he cannot pinpoint a precise manufacturing defect that caused the fifth battery cell to short-circuit. He instead lists several possibilities that could have occurred. Courts have excluded such testimony about possibilities in other cases. However, here, Plaintiffs acknowledge that they cannot isolate a precise cause and intend to prove their case by arguing an inference of a

[4] Of course, Apple will counter that although the battery cells were "neighboring" when the fire started, at some point the fifth cell was separated from the other four and tossed out the window, where it was exposed to the elements for months before its recovery. That fact also will go toward the weight of Mr. Eskra's conclusions.

defect, where circumstantial evidence tends to eliminate other causes. *See* ECF 64 at 20 (citing *Virgil v. "Kash N' Karry" Service Corp.*, 61 Md. App. 23, 32 (1984)). The factors relevant to whether such an inference is permitted include expert testimony as to possible causes, along with the proximity between the accident and the sale, like accidents in similar products, and the elimination of other causes of the accident, among others. Of course, whether Plaintiffs will be able to make the case successfully to establish such an inference remains unclear, particularly given the length of time between the computer's purchase and the fire and the intervening hardware replacement and software installation. But because Plaintiffs are not relying on Mr. Eskra to establish conclusively the defect in the battery cell, his testimony is relevant and permissible.

Ultimately, his theory is that the battery management system failed because one of the cells suffered a "soft short" and its state of charge dropped faster than the healthy cells. He hypothesizes that the defective cell's charge routinely fell below three volts, leading to accumulative internal damage. Eventually, the repeated over-discharging caused a "hard short," or a short circuit that caused a thermal event.

Apple cites its own evidence which, in its view, disproves Mr. Eskra's contention. Apple's battery management system has a cut-off when the charge reaches 3.4 volts. Once cutoff occurs, if the computer is not recharged, it takes many months for cells to discharge to under 3 volts. Apple correctly notes that there is no evidence of any long-term storage of Ms. Ross's laptop without regular charging. Ms. Ross never reported significant issues with her laptop, rarely ran the battery to point of automatic shutoff, and generally plugged the laptop in to recharge when the battery was low. She never found the laptop dead when she tried to turn it on. She experienced two spontaneous shutoffs after she downloaded a new operating system and

also found that the laptop would "run hotter" after that point. ECF 59-2, Exh. 4 at 86:3–89:1; ECF 59-2, Exh. 2 at 20:15–24:1. Thus, in Apple's view, there is no evidence suggesting that the fifth battery cell could have routinely dipped below 3 volts. Apple further submits that in issuing his opinion, Mr. Eskra did not consider information about the general usage or battery behavior of this MacBook before the fire and that he does not know the SoC at time of fire, although he speculated it could have been less than 80 percent. Finally, in Apple's view, Mr. Eskra's testing of exemplar devices did not show that the batteries could give off sufficient energy to ignite a fire nor did they show internal damage to any battery cells in the exemplars.

This Court agrees that without more, Mr. Eskra's use of other incidents involving fires caused by other people's MacBooks are irrelevant, as are recalls of different model laptops with different batteries. But ultimately, the facts cited by Apple go to the weight of Mr. Eskra's testimony, not its admissibility. For a proffered opinion to be relevant, it "must be 'sufficiently tied to the facts of the case that it will aid the jury in resolving a factual dispute.'" *Casey*, 823 F. Supp. 2d at 340 (quoting *Daubert*, 509 U.S. at 591). While Mr. Eskra's methodology leaves it subject to cross-examination in several areas, it is not so lacking in scientific validity that it warrants exclusion by this Court.

IV. SUMMARY JUDGMENT

Apple's Motion for Summary Judgment rests on this Court's exclusion of Mr. Eskra's testimony. *See* ECF 59-1 at 24 ("If his opinions are excluded (as they should be) then Apple necessarily is entitled to summary judgment under Rule 56 of the Federal Rules of Civil Procedure."). Because Mr. Eskra will be permitted to testify, the motion for summary judgment will be denied and the jury will weigh the competing expert testimony along with the other evidence.

V. CONCLUSION

For the reasons stated above, Plaintiffs' motion to exclude the testimony of Mr. Hromas, ECF 56, will be GRANTED. Plaintiffs' motion to exclude the testimony of Dr. Weaver, ECF 57, and their motion to limit the testimony of Mr. Hoffmann, ECF 58, will be GRANTED IN PART AND DENIED IN PART. Defendant's motion to exclude the testimony of Mr. Eskra and its motion for summary judgment, ECF 59, will be DENIED. The related, unopposed motion to seal exhibits, ECF 60, will be GRANTED.

A separate Order follows.

Dated: July 7, 2023

/s/
Stephanie A. Gallagher
United States District Judge